DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION

RCRA Corrective Action
Environmental Indicator (EI) RCRA Info code (CA750)
Migration of Contaminated Groundwater Under Control

Facility Name: Bayer OXY Hooker RUCO Site
Facility Address: New South Road
Facility EPA ID #: NYD002920312

Definition of Environmental Indicators (for the RCRA Corrective Action)

Environmental Indicators (EI) are measures being used by the RCRA Corrective Action program to go beyond programmatic activity measures (e.g., reports received and approved, etc.) to track changes in the quality of the environment. The two EI developed to-date indicate the quality of the environment in relation to current human exposures to contamination and the migration of contaminated groundwater. An EI for non-human (ecological) receptors is intended to be developed in the future.

Definition of "Migration of Contaminated Groundwater Under Control" EI

A positive "Migration of Contaminated Groundwater Under Control" EI determination ("YE" status code) indicates that the migration of groundwater has stabilized, and that monitoring will be conducted to confirm that contaminated groundwater remains within the original "area of contaminated groundwater" (for all groundwater "contaminated" subject to RCRA corrective action at or from the identified facility (i.e., site-wide)).

Relationship of EI to Final Remedies

While Final remedies remain the long-term objective of the RCRA Corrective Action program the EI are near-term objectives which are currently being used as Program measures for the Government Performance and Results Act of 1993, GPRA). The "Migration of Contaminated Groundwater Under Control" EI pertains ONLY to the physical migration (i.e., further spread) of contaminated ground water and contaminants within groundwater (e.g., non-aqueous phase liquids or NAPLs). Achieving this EI does not substitute for achieving other stabilization or final remedy requirements and expectations associated with sources of contamination and the need to restore, wherever practicable, contaminated groundwater to be suitable for its designated current and future uses.

Duration / Applicability of EI Determinations

EI Determinations status codes should remain in RCRA Info national database ONLY as long as they remain true (i.e., RCRA Info status codes must be changed when the regulatory authorities become aware of contrary information).

1. Has **all** available relevant/significant information on known and reasonably suspected releases to the groundwater media, subject to RCRA Corrective Action (e.g., from Solid Waste Management Units (SWMU), Regulated Units (RU), and Areas of Concern (AOC)), been **considered** in this EI determination?

   X If yes - check here and continue with #2 below.

   _____ If no - re-evaluate existing data, or

   _____ If data is not available, skip to #8 and enter "IN" (more information needed) status code.

BACKGROUND

Site Responsibility: This site is being addressed through Federal, State oversight of potentially responsible parties' (PRPs) actions.

The Bayer OXY Hooker Chemical/Ruco Polymer site, located in an industrial park area of New South Road in Hicksville on Long Island, has been used to manufacture plastics, latex, and esters since 1945. Liquid process wastes were discharged into sand sumps from 1951 to 1975. The sand sumps for Plant 2 manufactured polyvinyl chloride (PVCs) and latex, received approximately 2 million gallons of process wastewater per year from 1956 to 1975. Reportedly, the dry well for Plant 1, used for the manufacture of esters also received wastewater. Some glycol wastes have been incinerated on site. Numerous leaks and spills of chemicals, including polychlorinated biphenyls (PCBs), had occurred. Currently, all buildings located at the site have been demolished and the entire site has been razed to ground level. The building demolition and site soils are being remediated under a separate Operable Unit 4 (OU4) that is almost complete.

EPA has designated three operable units for the Site. Operable Unit 1 (OU-1) addresses select areas of contaminated soils at the Bayer OXY Hooker/Ruco Facility. Operable Unit 2 (OU-2) addresses select areas of polychlorinated biphenyl (PCB) contaminated surface soils. Operable Unit 3 (OU-3) addresses the down-gradient commingled contaminated groundwater plume beyond the Bayer OXY Hooker/Ruco Facility and also the contaminated groundwater beneath the Bayer OXY Hooker/Ruco Facility. The NYSDEC has designated two additional operable units, OU4 and OU5. OU4 is the remainder of impacted site soils and OU5 covers the ongoing soil vapor investigation.

In 2000, the Bayer Corporation purchased the Hooker Ruco facility and in 2002 decided to close the facility due to duplicative facilities. Bayer then had to follow the requirements of the NYSDEC's hazardous waste facility closure and corrective action requirements. This ultimately became OU4 under a NYSDEC 2012 ROD, in lieu of a Statement of Basis Report. USEPA issued an Administrative Order for OU2 and was completed in 1992. In January 1994, based on the results of the OU1 RIFS, USEPA issued a Record of Decision for OU1 that included additional soil sampling, excavation of shallow soils in limited areas, soil flushing and control of contaminated groundwater beneath the site. In June 1994, EPA issued a Unilateral Administrative Order directing the PRPs to perform the Remedial Design and Remedial Action for OU1. OU4 was established to address the remaining contaminated soils that were not addressed by the 1990 USEPA OU1 and OU2 ROD.

Construction of the Biosparge remedy for OU-3, conducted in phases, is now complete. The USEPA reviewed the performance of all the entire OU3 groundwater system and has given approval for the

completed OU3 Biosparge system. The down-gradient edge of the OU3 plume is being captured by the Northrop Grumman OU2 groundwater containment system. Therefore, OU3 is fully operational and is operating and performing successfully.

2. Is **groundwater** known or reasonably suspected to be **"contaminated"**[1] above appropriately protective "levels" (i.e., applicable promulgated standards, as well as other appropriate standards, guidelines, guidance, or criteria) from releases subject to RCRA Corrective Action, anywhere at, or from, the facility?

__X__ If yes - continue after identifying key contaminants, citing appropriate "levels," and referencing supporting documentation.

_____ If no - skip to #8 and enter "YE" status code, after citing appropriate "levels," and referencing supporting documentation to demonstrate that groundwater is not known or reasonably suspected to be "contaminated."

_____ If unknown - skip to #8 and enter "IN" status code.

Rationale:

The main groundwater contaminants of concern are the chlorinated aliphatic hydrocarbons. This includes vinyl chloride, Trichlorethene and Perchlorethene. The biosparge system has been installed to address the VCM and the remainder is captured by the Northrop Grumman Onsite Containment system as detailed in the EPA Hooker RUCO OU3 ROD.

References:

USEPA OU3 ROD and Quarterly monitoring reports for the Hooker RUCO site and the Northrop Grumman Site.

3. Has the **migration** of contaminated groundwater **stabilized** (such that contaminated groundwater is expected to remain within "existing area of contaminated groundwater[2] as defined by the monitoring locations designated at the time of this determination)?

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[1] "Contamination" and "contaminated" describes media containing contaminants (in any form, NAPL and/or dissolved, vapors, or solids, that are subject to RCRA) in concentrations in excess of appropriate "levels" (appropriate for the protection of the groundwater resource and its beneficial uses).

[2] "existing area of contaminated groundwater" is an area (with horizontal and vertical dimensions) that has been verifiably demonstrated to contain all relevant groundwater contamination for this determination, and is defined by designated (monitoring) locations proximate to the outer perimeter of "contamination" that can and will be sampled/tested in the future to physically verify that all "contaminated" groundwater remains within this area, and that the further migration of "contaminated" groundwater is not occurring. Reasonable allowances in the proximity of the monitoring locations are permissible to incorporate formal remedy decisions (i.e., including public participation) allowing a limited area for natural attenuation.

__X__ If yes - continue, after presenting or referencing the physical evidence (e.g., groundwater sampling/measurement/migration barrier data) and rationale why contaminated groundwater is expected to remain within the (horizontal or vertical) dimensions of the existing area of groundwater contamination[2]).

_____ If no (contaminated groundwater is observed or expected to migrate beyond the designated locations defining the existing area of groundwater contamination[2]) - skip to #8 and enter "NO" status code, after providing an explanation.

_____ If unknown - skip to #8 and enter "IN" status code.

Rationale:

See Number 2 above

References:

See Number 2 above

4. Does "contaminated" groundwater **discharge** into **surface water** bodies?

____ If yes - continue after identifying potentially affected surface water bodies.

__X__ If no - skip to #7 (and enter a "YE" status code in #8, if #7 = yes) after providing an explanation and/or referencing documentation supporting that groundwater "contaminated" does not enter surface water bodies.

_____ If unknown - skip to #8 and enter "IN" status code.

Rationale:

N/A

References:

N/A

5. Is the **discharge** of "contaminated" groundwater into surface water likely to be **"insignificant"** (i.e., the maximum concentration[3] of each contaminant discharging into surface water is less than

[3]As measured in groundwater prior to entry to the groundwater-surface water/sediment interaction (e.g.,

10 times their appropriate groundwater "level," and there are no other conditions (e.g., the nature, and number, of discharging contaminants, or environmental setting), which significantly increase the potential for unacceptable impacts to surface water, sediments, or eco-systems at these concentrations)?

____ If yes - skip to #7 (and enter "YE" status code in #8 if #7 = yes), after documenting: 1) the maximum known or reasonably suspected concentration[3] of key contaminants discharged above their groundwater "level," the value of the appropriate "level(s)," and if there is evidence that the concentrations are increasing; and 2) provide a statement of professional judgment/explanation (or reference documentation) supporting that the discharge of groundwater contaminants into the surface water is not anticipated to have unacceptable impacts to the receiving surface water, sediments, or eco-system.

____ If no - (the discharge of "contaminated" groundwater into surface water is potentially significant) - continue after documenting: 1) the maximum known or reasonably suspected concentration[3] of each contaminant discharged above its groundwater "level," the value of the appropriate "level(s)," and if there is evidence that the concentrations are increasing; and 2) for any contaminants discharging into surface water in concentrations[3] greater than 100 times their appropriate groundwater "levels," the estimated total amount (mass in kg/yr) of each of these contaminants that are being discharged (loaded) into the surface water body (at the time of the determination), and identify if there is evidence that the amount of discharging contaminants is increasing.

____ If unknown - enter "IN" status code in #8.

Rationale:
N/A

References:

N/A

6. Can the **discharge** of "contaminated" groundwater into surface water be shown to be "**currently acceptable**" (i.e., not cause impacts to surface water, sediments or eco-systems that should not be allowed to continue until a final remedy decision can be made and implemented[4])?

____ If yes - continue after either: 1) identifying the Final Remedy decision

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hyporheic) zone.

[4]Note, because areas of inflowing groundwater can be critical habitats (e.g., nurseries or thermal refugia) for many species, appropriate specialist (e.g., ecologist) should be included in management decisions that could eliminate these areas by significantly altering or reversing groundwater flow pathways near surface water bodies.

incorporating these conditions, or other site-specific criteria (developed for the protection of the site's surface water, sediments, and eco-systems), and referencing supporting documentation demonstrating that these criteria are not exceeded by the discharging groundwater; OR
2) providing or referencing an interim-assessment,[5] appropriate to the potential for impact, that shows the discharge of groundwater contaminants into the surface water is (in the opinion of a trained specialists, including ecologist) adequately protective of receiving surface water, sediments, and eco-systems, until such time when a full assessment and final remedy decision can be made. Factors which should be considered in the interim-assessment (where appropriate to help identify the impact associated with discharging groundwater) include: surface water body size, flow, use/classification/habitats and contaminant loading limits, other sources of surface water/sediment contamination, surface water and sediment sample results and comparisons to available and appropriate surface water and sediment "levels," as well as any other factors, such as effects on ecological receptors (e.g., via bio-assays/benthic surveys or site-specific ecological Risk Assessments), that the overseeing regulatory agency would deem appropriate for making the EI determination.

_____ If no - (the discharge of "contaminated" groundwater cannot be shown to be "**currently acceptable**") - skip to #8 and enter "NO" status code, after documenting the currently unacceptable impacts to the surface water body, sediments, and/or eco-systems.

_____ If unknown - skip to 8 and enter "IN" status code.

Rationale:
N/A

References:

7. Will groundwater **monitoring** / measurement data (and surface water/sediment/ecological data, as necessary) be collected in the future to verify that contaminated groundwater has remained within the horizontal (or vertical, as necessary) dimensions of the "existing area of contaminated groundwater?

__X__ If yes - continue after providing or citing documentation for planned activities or future sampling/measurement events. Specifically identify the well/measurement locations which will be tested in the future to verify the expectation (identified in #3) that groundwater contamination will not be

[5]The understanding of the impacts of contaminated groundwater discharges into surface water bodies is a rapidly developing field and reviewers are encouraged to look to the latest guidance for the appropriate methods and scale of demonstration to be reasonably certain that discharges are not causing currently unacceptable impacts to the surface waters, sediments or eco-systems.

migrating horizontally (or vertically, as necessary) beyond the "existing area of groundwater contamination."

Rationale:

The offsite groundwater is tracked, monitored and is contained by the Northrop Grumman Groundwater Containment Remediation system. There is also an EPA approved groundwater monitoring plan for the OXY OU3 EPA lead part of the program. The referenced Northrop Grumman and OXY groundwater monitoring plans and reports are available upon request.

_____ If no - enter "NO" status code in #8.

_____ If unknown - enter "IN" status code in #8.

8. Check the appropriate RCRA Info status codes for the Migration of Contaminated Groundwater Under Control EI (event code CA750), and obtain Supervisor (or appropriate Manager) signature and date on the EI determination below (attach appropriate supporting documentation as well as a map of the facility).

__X__ YE - Yes, "Migration of Contaminated Groundwater Under Control" has been verified. Based on a review of the information contained in this EI determination, it has been determined that the "Migration of Contaminated Groundwater" is "Under Control" at the Bayer OXY Hooker RUCO Site , located on New South Road, Hicksville, NY, EPA RCRA ID No. NYD002920312. Specifically, this determination indicates that the migration of known or reasonably suspected to be "contaminated" groundwater is under control, and that monitoring will be conducted, as necessary, to confirm that contaminated groundwater remains within the "existing area of contaminated groundwater". This determination will be re-evaluated when the Agency becomes aware of significant changes at the facility.

_____ NO - Unacceptable migration of contaminated groundwater is observed or expected.

_____ IN - More information is needed to make a determination.

Completed by: _____ Date: 03/31/2015
Steven M. Scharf, P.E
Project Manager, NYSDEC, Remedial BUREAU A Section C

Supervisor: _____ Date: {03/31/2015
John Swartwout, P.E.
Chief, Section C, BURA

Director: _____ Date: {date} 3/31/2015

James Harrington, P.E
Bureau Director, BURA

Locations where References may be found:

New York State Department of Environmental Conservation, Central Office
Division of Environmental Remediation
625 Broadway 12th Floor
Albany, New York 12233-7013

Contact, telephone number and e-mail:

Steven M. Scharf, P.E.
NYSDEC Project manager
518-402-9620